IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventors: Timothy G. BEARD, et al. Art Unit: 2661

Appln. No.: 10/787,243

Filed: February 27, 2004

For: EXTENDED DYNAMIC RESOURCE ALLOCATION IN PACKET DATA TRANSFER

PETITION TO MAKE SPECIAL

Assistant Commissioner of Patents
Washington, DC 20231

URGENT

Sir:

The Applicants respectfully petition that the above-captioned application be granted special status. The requirements of MPEP section 708.02(VIII) are complied with as follows:

(1) Please charge the petition fee set forth in 37 CFR 1.17(i) to Deposit Account No. 19-4375.

(2) All pending claims are believed to be directed to a single invention; if the Office determines that all the claims presented are not obviously directed to a single invention, the Applicants agree to make an election without traverse as a prerequisite to the grant of special status.

(3) A preexamination search has been made. The field of search is:

Class 370, subclasses 321, 322, 329, 336, 337, 347, 348, 349, 437, 442, and 443; and

Class 455, subclasses 422, 426.1, 450, 452.1, 466 and 517.

Examiners Hassan Kizou and William Trost were consulted for the field of search.

A pre-examination search has also been made in the form of a GB Search Report dated November 6, 2003.

An Information Disclosure Statement is filed herewith, directed to the searches and the art cited in the specification.

(4) One copy each of the prior art deemed most closely related to the subject matter encompassed by the claims is of record in the form of the art cited in the Information Disclosure Statement submitted herewith.

(5) The following is a detailed discussion of the art of record, pointing out how the instant claimed subject matter is patentably distinguishable thereover.

The M. Mouly et al. document cited on page 1 of the present application is a textbook that provides a general description of the GSM system. This textbook is believed to have no relevance to the details recited in the present claims.

The 3GPP TS 43.064 v5.1.1 document provides a description of the General Packet Radio System (GPRS). For packet data transmissions in GPRS, a number of Packet Data Channels (PDCH) provide the physical communication links. The time division is by frames of 4.615 ms duration and each frame has eight consecutive

0.577 ms time slots. The slots may be used for uplink or downlink communication. Uplink communication is a transmission from the mobile station for reception by the network to which it is attached, while downlink communication is reception by the mobile station of a transmission from the network.

The TS 101 350 v8.5.0 (GSM 03.64 V 8.5 release 1999) document provides a description of the General Packet Radio System (GPRS). This document is believed to have no relevance to the details recited in the present claims. For packet data transmissions in GPRS, a number of Packet Data Channels (PDCH) provide the physical communication links. The time division is by frames of 4.615 ms duration and each frame has eight consecutive 0.577 ms time slots. The slots may be used for uplink or downlink communication. Uplink communication is a transmission from the mobile station for reception by the network to which it is attached, while downlink communication is reception by the mobile station of a transmission from the network.

The 3GPP TS 45.008v5 10.0 and 3GPP TS 45.002v5 9.0 Annex B documents disclose that the mobile station is unable to instantly switch between receive and transmit modes, with the required time being called turnaround time. The mobile station must also, in packet transfer mode, perform neighboring cell measurements. The mobile station must continuously monitor all BCCH carriers as

indicated by the BA(GPRS) list and the BCCH carrier of the serving cell. The mobile station takes a received signal level measurement in every TDMA frame, on at least one of the BCCH carriers. The turnaround times guaranteed by the network for a mobile station depend on the multi-slot class to which the mobile claims conformance.

GB '595 discloses a communication system including a base station that communicates with a remote unit during first and second downlink time slots in a first frame of a link. In this system, a determination is made of a rate of change of a propagation characteristic of the link, and the slots are allocated in the frame based on the determined rate of change. When the rate of change increases, the delay between the first and second slots is decreased. Alternatively, the slots are allocated to reduce the maximum time between the slots for increasing rates of change of the propagation characteristic.

EP'405 discloses a communication system communicating information in slots of a frame, wherein a first base station associated with a first cell communicates with users on downlink and uplink in the first cell and a second base station associated with a frequency reuse cell communicates with users on downlink and uplink in the frequency reuse cell. The first antenna of the first base station potentially interferes with a second antenna of the

second base station in the reception of uplink information. The system allocates slots to users in each of the cells such that the first antenna transmits downlink information in a different portion of the slots of the frame than that in which the second antenna receives uplink information. Some slots may be allocated to uplink or downlink based in part on user demand.

EP'916 discloses a multiple access scheme in which uplink and downlink voice traffic share a common channel. The time slots in the common channel are allocated based on whether assigned users are currently communicating. Status information is sent in a control slot when a user requests a slot for communication, and slots are allocated based on the status information. More particularly, the method of allocating slots is such that when a first user in a given user pair requests a slot for communicating information to a second user in the user pair, the first slot is assigned as one of either an uplink or a downlink slot, and when the second user in the user pair requests a slot for communicating information to the first user in the user pair, a second slot is assigned to the second user, said second slot being assigned as the other of uplink or downlink slot.

US'534 discloses a system that dynamically allocates TDMA slots between GPRS and circuit switched service. A certain number of slots are reserved for GPRS and the rest for circuit switched

service. More slots are allocated to GPRS when certain criterion exist, such as increased traffic requirement of packet radio service is detected. The criterion may be: set up of a new packet radio connection, termination of an existing packet radio connection, set up of a new packet radio session, termination of an existing packet radio session, handover of a certain mobile station, and reaching of a certain threshold value in a traffic measurement performed at the base station.

JP'674 discloses a multiple access system employing bi-directional TDMA. Base station 11 has a slot management device 15 that dynamically allocates each slot depending on the traffic detected by a traffic measurement device 17 that measures the traffic in each slot used by a mobile station M. When a communication request comes from a second mobile station M while the assignment of all slots is already finished, the second mobile station's request is not definitely rejected but slot re-assignment is executed by a scheme of assigning a slot with less traffic used in common by a first mobile station M using the slot at present and the second mobile station M making a communication request at an interval of a frame.

JP'847 discloses a TDMA PHS system that allocates time slots by controlling dynamically the setting of the slot assignment number of each data communication based on the total communication

frequency and the priority of data communication when one or more data communication are performed. A base station 1 time-divides a 5ms frame into a control slot having an uplink/downlink pair each having one control slot and three communication slots. The base station performs TDMA control to mobile stations 2, 3 and 4 in every slot having a pair of incoming and outgoing slots. At the same time, TDMA control is performed where the voice communication slot assignment number is set at 1 with the data communication slot assignment number set at 1 or 2, respectively. The allocation of time slots is controlled to achieve efficient use of communication slots according to the total number of communications, the communication type of each communication and the priority order thereof at the baser station.

US '745 discloses the general concept of a packet data communication system using a variable USF (Uplink State Flag) interleaved with downlink data, to schedule traffic on the uplink for mobile stations on the same physical channel by using a single USF indicating to a mobile station that one or several consecutive radio blocks is reserved for uplink transmission from a specific mobile station. The mobile station is informed by the USF of an arbitrary number of radio blocks that can be consecutively transmitted.

US '546A1 discloses a general packet radio service (GPRS) technique involving selective positioning of uplink status flags (USF) in a group of bursts. A first plurality of uplink status flags is selected and all of the flag bits are provided in the first block of the group of bursts. A second plurality of uplink status flags is selected and a predetermined number of bits of the uplink status flags are provided in the first burst of the group of bursts and the remaining bits are provided in the other bursts of the group. On receiving the first nine bits, a mobile station performs an autocorrelation to identify whether the USF belongs to the EGPRS or to the RT-EGPRS group.

US '956A1 discloses dynamic channel allocation using uplink status flags (USF) to allocate communication channels among communication stations. Dynamic channel allocation is a function of network parameters to control the dynamic channel operation.

The references cited above, either alone or in combination, fail to disclose or suggest the combination of features recited in the present independent claims 27 and 50 of a multiple access communication system in which a base station transmits an uplink status flag (USF) on a downlink slot, wherein a shifted USF operation is not used, then a USF which instructs a mobile station to perform uplink transmission on a first uplink slot is transmitted on a first downlink slot, and when the shifted USF

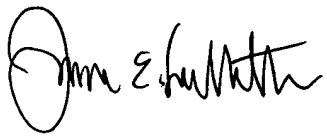
operation is used, then the USF which instructs the mobile station to perform uplink transmission on the first uplink slot is transmitted on a second downlink slot. All of the other pending claims depend from claims 27 and 50, and patentably distinguish over the combined references due to at least the above-noted subject matter of claims 27 and 50.

Applicants submit that the references discussed herein, considered alone or in combination, fail to disclose or suggest the claimed subject matter.

Therefore, in light of the foregoing discussion pointing out how the claimed invention distinguishes over these references, Applicants respectfully submit that the inventions of claims 27-72 are not anticipated by these references and would not have been obvious over any combination thereof.

Grant of special status in accordance with this petition is respectfully requested.

Respectfully submitted,



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